

Overview: A New Look at Oil Spill Response

An Analysis of the BP Macondo Spill Cleanup

The Science & Technology Advisory Board of the Lawrence Anthony Earth Organization (LAEO) has just published a significant position paper entitled [*A Call for a Twenty-First-Century Solution in Oil Spill Response*](#).

Seeking to bring energy industry professionals, interagency federal and state officials, and environmental interests together at the same table, the work introduces an important principle overlooked during the 2010 BP Oil Spill:

The foremost reason one cleans up an oil/chemical spill is to *REMOVE* the pollutants/toxicity from the environment as rapidly as possible so that living organisms can survive, the ecosystem can sustain itself, and threats to human health are reduced as much as possible.

Utilizing this principle as a fundamental standard for oil spill cleanup guidance and policy establishes a valuable frame of reference by which one can evaluate response methods—mechanical cleanup, dispersants, and non-toxic agents—as to their effectiveness and economic viability.

The guidance material contained in this work is a constructive offering for every oil-producing country in the world and their potentially contaminated ecosystems. The paper brings a new analysis and assessment of the BP Macondo disaster response. It contains guidelines for the selection process for oil spill cleanup agents, along with an evaluation process that can be used to grade potential effectiveness of those agents in swiftly removing spilled oil from the environment.

The LAEO analysis challenges the standard that “25 percent cleaned up” is an acceptable industry benchmark for an effective spill response. Research indicates that existing technology can far exceed that.

Recently a special feature covering the 2010 BP spill response (“*Science in Support of the Deepwater Horizon Response*”), published in the Proceedings of the National Academy of Sciences (PNAS) journal of December 2012, sent mixed messages and missed the importance of the above principle as the basis for measuring response effectiveness. While declaring the cleanup successful, the *Perspective*, co-authored by federal interagency scientists and associates, also acknowledged, “*Despite aggressive recovery and removal efforts, only around one-quarter of the oil was removed by the federally directed response.*” It is unclear how these authors arrived at an overall conclusion that the spill response was effective. Our concern is that similar methodology will likely be used on future spills.

Long-term and even recent studies of oil spill environmental damage and the response methods employed show that these “successful” methods have failed to remove the toxicity from the environment (and in the case of dispersants, have added toxicity), creating destruction to wildlife, marine life, the local economy, and human health.

The *Twenty-First-Century Solution* paper expresses a significant concern that federal agencies tasked with protecting our waters and natural resources hold the viewpoint that (a) the negative effects of chemical dispersants “need more study before anyone will really know for sure,” while they continue to use them as a preferred pre-approved method, and (b) there are no better methods.

This paper’s *Call for Action* details and builds a science-based case for halting the use of dispersants that contain pollutants and do not effectively remove oil and its toxic components from the environment; and more importantly, it presents an effective non-toxic replacement for current methodology.

The LAEO Science & Technology Board’s review of the US EPA’s National Contingency Plan (NCP) found that it currently lists a category of non-toxic first-response oil spill cleanup technology, applicable in all environments, that safely and effectively removes hydrocarbons and all harmful chemicals from a spill site. It also results in complete and rapid restoration with no negative environmental “trade-offs.”

If there were no economically viable and effective spill-fighting alternative available, the situation would be of great concern. The problem is that the US EPA has restricted the use of this technology in open-water environments, and despite science supporting the safe use of these alternatives, policy has remained unchanged

The LAEO position paper reviews how it came to be that a fully developed science-based spill cleanup protocol has not been preauthorized but instead obstructed by the U.S. EPA authorities, and this, in light of the mandates contained within the Clean Water Act and EPA’s Mission Statement. Some of these alternative technologies vastly exceed currently deployed first-response technologies in performance. One alternative - a widely used and recognized spill-response methodology—Bioremediation Category *Enzyme Additive*—not only quickly detoxifies and diminishes the adhesive characteristics of oil (and detoxifies associated dispersants, if present), but its end point is a conversion of nearly 100% of the spill components to harmless carbon dioxide and water within several days to weeks. At this time, there is only one supplier—OSEI International—that manufactures an enzyme-additive product (OSE-II), which is a fully tested, currently available, commercial product.

The development of response plans around this first response bioremediation technique represents a potential complete change in methodology if one recognizes that the primary objective of the contingency plans and spill response is the complete removal

and rapidly reduced toxicity levels and the other damaging characteristics of an oil spill so that living organisms, from the tiniest microbes up to the largest mammals, can survive.

LAEO has compiled and released a position paper attempting to encompass all sides and stakeholders, recognizing the importance of the indispensable economic contributions to society that oil and gas companies bring. It also advocates that it is vital and possible to simultaneously produce energy and economically protect the environment.

The information presented is intended to provide a gateway for achieving higher standards in oil spill response as well as for meeting the compliance criteria of the Clean Water Act. The LAEO Science & Technology Advisory Board urges all national, regional, and area oil spill response professionals to consider the data and information offered in its publication and join them in re-examining oil spill response contingency plans and the science upon which they are based.

To summarize the action items:

A Call for a Twenty-First-Century Solution in Oil Spill Response

Action Items:

- Ban the use of chemical dispersants or agents known to be toxic, used for oil spill mitigation and remediation in US navigable waters and all environments.
- Revise the National Contingency Plan and all related guidance documents referenced by Regional and Area Response Teams to incorporate current science and information, specifically including:
 - removing the *preauthorization* for the use of toxic dispersants in US navigable waters in NCP/RRT response plans;
 - updating the NCP *Bioremediation Fact Sheet* referenced by NRT, RRTs, NOAA et al. with corrected science guidance contained in the article [BIOREMEDIATION TECHNIQUES, CATEGORY DEFINITIONS, AND MODES OF ACTION IN MARINE AND FRESHWATER ENVIRONMENTS](#). Disseminate this revised material for educational purposes regarding bioremediation;
 - revising *Response Plan* documents guiding the use of Bioremediation Agents to remove any potential misinformation and to list *EA Type* as a first-response non-toxic option for treatment of oil spills
- Insist that the U.S. EPA issue the necessary authorization for non-toxic bioremediation remedy [non-microbial type which can be introduced in open water environments], already screened by EPA scientists and approved (Bioremediation Agent Type EA, OSE II), to be deployed immediately to bring the Gulf waters and associated environments back to good health.
- Raise pollution removal standards up to the original intent of the Clean Water Act by requiring that all companies capable of creating spills include non-toxic NCP-listed products in their cleanup protocols, helping to ensure that their response employs methods that swiftly detoxify and remove oil from a spill area as completely as possible.